RESPONSIVENESS SUMMARY
SCRDI BLUFF ROAD SITE

This community relations responsiveness summary is divided into the following sections:

Overview: This section discusses EPA's preferred alternatives for remedial action.

Background: This section provides a brief history of community interest and concerns raised during remedial planning at the SCRDI Bluff Road Site.

Part I: This section provides a summary of commentor's major issues and concerns, and expressly acknowledges and responds to those raised by the local community. "Local community" may include local home owners, businesses, the municipality, and not infrequently, potentially responsible parties (PRPs).

Part II: This section provides a comprehensive response to all significant comments and is comprised primarily of the specific legal and technical questions raised during the public comment period. If necessary, this section will elaborate with technical detail on answers covered in Part I.

Any points of conflict or ambiguity between information provided in Parts I and II of this responsiveness summary will be resolved in favor of the detailed technical presentation contained in Part II.

OVERVIEW

EPA published its Proposed Plan in April, 1990 and presented its preferred treatment alternatives for the SCRDI Bluff Road Site, located in Richland County, South Carolina on April 10, 1990. EPA's recommended alternatives addressed soil and ground-water contamination by proposing a ground-water collection and air stripping treatment combined with a soil extraction and thermal treatment method. Each recommended alternative is briefly described below.

EPA's preferred alternative for addressing ground-water contamination involves extracting or removing contaminated water from the upper aquifer using wells and treating the contaminated water by air stripping. Air stripping is a process by which air is forced through contaminated water, causing volatile organic compounds to evaporate. Organic compounds would be treated with a carbon adsorption treatment, which uses granular activated carbon to remove organic contaminants found in the water. Once this process is completed, extracted ground water would be reinjected into the ground.

EPA's recommended alternative for treating soil contamination that was presented to the public involved excavating the site soils and treating the soils on-site using low temperature thermal desorption. This treatment method allows moisture and organic compounds to vaporize and escape from the soil. Once this process is completed, the soil would be discharged into a mill where water would be added to it to reduce dusting problems. The treated soil would then be returned to the site.

The community in general prefers the removal of contaminants to a disposal facility off-site. There were no specific complaints directed toward the preferred treatment for groundwater since the residents are concerned about the impact of the contaminated aquifer on local wells. PRPs disagreed with the preferred alternative for treatment of soils, citing a less costly soil treatment alternative, in-situ soil venting, as their preference. The State enforcement agency, SCDHEC, is in agreement with EPA's preferred choice for soils and groundwater, but disagreed with cleanup criteria proposed for soils.

The alternative presented in the Record of Decision for treating soil contamination is soil vacuum extraction. This change was based on the results of a pilot test conducted at the site which demonstrated that the contaminants in soils can be removed by soil vacuum extraction.

BACKGROUND

EPA's most recent community relations efforts included an availability session held in November 1989 to present the remedial investigation study results; release of a fact sheet detailing cleanup options in April 1990; and, a public meeting that was held on April 10, 1990. Approximately 60 people attended the public meeting.

Site information repositories contain the RI/FS Report and other relevant documents. EPA maintained contact with local officials and citizens throughout the remedy selection process.

EPA opened a public comment period from April 10 through June 10, 1990. The public comment period, originally scheduled to end May 10, 1990, was extended by one month.

Community interest and concern about the site has been relatively high over the past several years. The Hopkins Community Council and Citizens for Hopkins are extremely concerned about ground- and drinking water quality and land development options when remediation is complete. EPA agreed to expand its sampling plan to include wells identified by residents. Two additional attendees were told that EPA anticipates the cleanup will take approximately 16 years to complete. No projection on restricted use can be made now.

PART I: SUMMARY OF COMMENTORS' MAJOR ISSUES AND CONCERNS

This section provides a summary of major issues and concerns raised during the public comment period on the RI/FS and Proposed Plan, and identifies how EPA addressed their concerns. The issues and concerns are divided into five categories:

A. Implementation of Remedy

B. Health Concerns

C. Remedy Selection

D. Site History

E. The Concerns

A. Implementation of Remedy

- A citizen asked if EPA's proposed soil and ground-water contamination remedies have been implemented elsewhere.

- EPA Response. Yes. Air stripping of treated ground water is used by EPA at many sites and is a proven technology. Thermal desorption is a newer treatment method. It has been used successfully in an EPA Region in the Northeast, and will be implemented at a site in South Carolina.

- A meeting attendee asked what percentage of the contaminants will be removed under EPA's proposed cleanup plan.

  EPA Response. EPA cannot provide a specific percentage of contaminants that will be removed under the proposed plan. The feasibility study lists cleanup goals and actual numbers associated with the goals. Under the proposed plan, EPA will clean up ground water to the maximum safe concentrations of certain compounds, or the maximum contaminant levels. These levels are specified in the Safe Drinking Water Act.

- An attendee asked if under the proposed plan, any contamination would remain at the site after EPA has completed treatment of ground water and soil.

- The State of South Carolina requested that soils be cleaned to background levels indicating that Applicable, Relevant and Appropriate Requirements (ARARs) in the State of South Carolina mandate same.

EPA Response. EPA requested that the State enforcement agency submit or cite to EPA representatives regulations or laws it determined were ARARs at the Site. EPA representatives met with State officials on June 5, 1990 and expressed that soils are perceived as a threat to groundwater in that leaching of residual contaminants could affect groundwater quality. Because EPA must meet Safe Drinking Water Standards, soils will be cleaned to levels required for compliance. In some instances, EPA has cleaned soils below background levels in order to satisfy applicable standards.

EPA Response. Yes. If, for example, the maximum contaminant level for a particular chemical is five parts per billion, then that chemical may be present at three or four parts per billion after treatment is completed.

o A citizen asked if the process to clean up ground-water contamination will take 16 years.

EPA Response. Yes. The feasibility study estimates that ground-water contamination will take 16 years to clean up. A better estimate of the time required to remediate the aquifer will be available at the conclusion of the remedial design.

o An attendee asked what type of oversight EPA will provide during site cleanup.

EPA Response. EPA is responsible for overseeing site cleanup. The U.S. Army Corps of Engineers may share oversight responsibility at the Site given their technical expertise in construction. If responsible parties perform site cleanup work, then EPA and a third-party oversight contractor hired by EPA, oversee the entire project. Sometimes, the Corps of Engineers also provides oversight at responsible party lead sites.

o An attendee asked if EPA will monitor the site once cleanup is completed.

EPA Response. Yes. EPA will monitor the site for some time. As part of the remedial action, an operation and maintenance plan will be developed and implemented. This plan will include a monitoring program. At some point, approximately sixteen years from now when the contaminated soil and ground water are cleaned up, EPA will stop monitoring the site.

B. Health Concerns

- A citizen asked if drums are still on the Site, and if so, do the drums contain contaminated substances and what will be done to remove them from the site.

  EPA Response. There were no drums remaining at the Site at the conclusion of the RI field work. All drums were removed from the Site in 1982. An above-ground storage tank also was removed as part of the remedial investigation. Recent well sampling activities have resulted in drummed purge water remaining in drums on-site until results indicate how these drums may disposed of properly.

- The council member for the Lower Richland area asked if the ground water at the site is contaminated.

  EPA Response. Yes. The ground water at the site is contaminated.

- The council member for the Lower Richland area asked how far and in what direction the ground-water contamination has spread.

  EPA Response. Ground-water contamination is in the upper aquifer. The contaminant plume has moved approximately 1,400 to 1,500 feet downgradient and has expanded about 1,000 to 1,500 feet in width. It is an extensive plume that is located within the site boundaries. Although the ground-water contamination is headed towards the Myers Creek area, the anticipated corrective action may allow for the placement of extraction wells in the plume and at the front edge of the plume to stop migration downgradient.

- The council member for the Lower Richland area asked how frequently EPA plans to sample the site monitoring wells to check whether or not the contaminated ground water is moving.

  EPA Response. EPA will be resampling the wells the week of April 16th. At this time, there is no set schedule to sample the wells. The State of South Carolina is working with EPA, and has requested that the wells be sampled about every three or four months. EPA is going to try to do this. It could be every four months, instead of three, but EPA will be monitoring the situation. EPA will ensure that sampling results are available in the information repository.

- An attendee asked why wells of the residents located near the contaminated area have not been tested for contamination.

  EPA Response. EPA has not tested any private wells because sampling of the site monitoring wells that are located the greatest distance from the source of the ground-water contamination have not detected contamination. If EPA found contamination in these wells, which are located between the site and places of residence, EPA would install monitoring wells closer to area residents and then test for ground-water contamination.

- The council member from the Lower Richland area asked if EPA would test the well water of residences closest to the site.

  EPA Response. EPA will consider testing the well water of some area residents when the site wells are sampled on April 16, 1990. [The residents were later found to be on a municipal water supply.]

- A local citizens' group, Citizens for Hopkins, requested that EPA test the well water of residences located below the dump site along Myers Creek and south to the river, which includes many homes along Bluff Road and Old Bluff Road. The group requested that both shallow wells and deep wells be tested.

  EPA Response. EPA attempted to sample private wells located downgradient from the Site in April 1990. These wells were determined to be connected to municipal water supplies, therefore, no samples were collected.

- An attendee asked if contaminated compounds were migrating from the site into Myers Creek.

  EPA Response. EPA has sampled the sediment and water in Myers Creek and found some increases in volatile organic compounds, but not enough increase to pose a threat to human health and the environment.

- A citizen asked how many people will develop cancer in the 16-year period that EPA estimates will be necessary to complete ground-water treatment.

EPA Response. No one is currently exposed to the ground-water contamination because no one is pumping and using the contaminated water. Also, no one will be exposed during the estimated 16-year cleanup period, because wells will be installed to pump and treat the contaminated ground water and to stop the contaminated plume from migrating.

- A citizen asked if it is safe for children and adults to fish at Myers Creek and surrounding streams.

EPA Response. Yes. Based on the results of EPA's sampling, contamination from the Site does not pose a threat to human health in Myers Creek. If there are concerns regarding the pollution of Myers Creek from other sources, EPA recommends that these concerns be presented to the South Carolina Department of Health and Environmental Control (SCDHEC).

- SCDHEC asked that EPA conduct ground-water sampling on a quarterly basis during the remedial design phase and on a semiannual basis during the remedial action phase.

EPA Response. This request from SCDHEC has been received and is to be included as part of the work to be performed during the remedial design and remedial action at the site.

C. Remedy Selection

- SCDHEC indicated commented that all remedies selected at the Bluff Road site must comply with South Carolina State laws and requirements.

EPA Response. CERCLA requires that remedial actions shall at least attain Federal or more stringent State standards, requirements, criteria, or limitations that are legally applicable or relevant and appropriate requirements under the circumstances of the release of the hazardous substances.

- Citizens for Hopkins and the Hopkins Community Council requested that EPA implement Alternative 9, Soil Excavation and Off-Site Thermal Treatment, rather than Alternative 7, Thermal Desorption.

EPA Response. Thermal desorption, combined with air stripping to address contaminated ground water, provides the best balance among the nine criteria that EPA uses to evaluate remedial alternatives. EPA did not choose Alternative 9, Soil Excavation and Off-Site Thermal Treatment, because this remedy is not cost effective when compared to other soil treatment alternatives. [Since the public meeting a treatability study was conducted at the site to determine if soil vacuum extraction would extract the semi-volatile compounds present in the soil. This treatment does appear to remove the semi-volatile compounds therefore it would best meet the nine criteria.]

0 A group of PRPs commented that the risk analyses conducted to assess soil contamination demonstrated that the soils are not an endangerment to public health or the environment. The PRPs asked EPA to select the least costly remedy, in-situ soil venting, rather than EPA's proposed alternative, thermal desorption.

EPA Response. After careful review of all soil treatment alternatives, EPA determined that Alternative 7, Thermal Desorption, provides the best balance among the nine criteria that EPA uses to evaluate remedial alternatives.

[EPA has since decided that soil vacuum extraction (soil venting) provides the best balance of the nine criteria after demonstrations at the Site resulted in extraction of soil contaminants.]

D. Site History

o An attendee asked when waste disposal activities at the Site ended.

EPA Response. Activity at the site ended in 1981 or 1982. In 1982, all of the barrels and much of the contaminated surface soil were removed from the site during a removal action.

o An attendee who observed numerous barrels on the site about one year ago asked what happened to the barrels and why they were there.

EPA Response. The barrels contained water extracted from Site monitoring wells. In order to sample ground water for contamination, a certain amount of water must first be purged from

the well. Because it was not known whether the water was contaminated or uncontaminated, the water was collected and stored in barrels. When sampling was completed, the water from the barrels was pumped into a tank and taken off-site for disposal. The empty drums were picked up by the contractor and removed from the site for recycling.

- An attendee wanted to know why an area on the Site containing numerous barrels used for ground-water sampling was excavated.

  EPA Response. The area was not excavated, but rather a road was put in to provide access to the location where a monitoring well was to be installed.

- A citizen asked where the chemicals came from that contaminated the Site.

  EPA Response. The chemicals came from a recycling and disposal operation that was run by a company called South Carolina Recycling and Disposal which collected materials in the southeast and other areas of the country.

E. Other Concerns

- The council member for the Lower Richland area asked to receive a copy of the ground-water sampling results that EPA agreed to provide in the information repository.

  EPA Response. Yes. EPA will send the council member a copy of the ground-water sampling results obtained at the site.

- A citizen of Hopkins asked if EPA would make a change in the fact sheet to state that the residents of Hopkins use well water.

  EPA Response. Yes. If confirmed, EPA will make the change.

- An attendee asked what EPA will do in the event that Site cleanup exceeds EPA's estimated cost.

  EPA Response. EPA is planning to work with the responsible parties and have them do the work. If the cost of cleanup under the proposed plan exceeds the estimate, responsible parties will be assessed the additional costs. If the cleanup is financed with government funds, the costs will be recovered from responsible parties.

- A citizen asked if the responsible parties have agreed to pay 52 percent of the cost of site cleanup and if EPA has agreed to pay the remainder.

  EPA Response. No. The figure 52 percent refers to a group of responsible parties that voluntarily agreed to do the work recently undertaken at the Site. Other responsible parties include a group of federal facilities that will take care of their share of the cleanup, a group of responsible parties that EPA sued in 1982, and others who have not participated in any activities at the Site. EPA hopes that this project will be completely funded by responsible parties. If that does not happen, the unreimbursed cost of cleanup will be recovered by EPA.

- A citizen asked if the community will have input into the selection of the cleanup process that will be implemented at the site.

  EPA Response. Yes. The public will have thirty days to respond to EPA's proposed cleanup plan. The public comment period begins on April 10, 1990, the date of the public meeting. The information repository contains detailed documents to assist the public in commenting on EPA's proposed plan. All public comments will be considered before EPA makes a decision on the cleanup plan that will be implemented.

- An attendee asked if comments from the Community Council could be submitted in a unified version along with the signatures of persons who agree to a particular cleanup action.

  EPA Response. Yes. The Council's comments can be submitted in a unified version, accompanied by signatures of people who support a particular cleanup plan.

- A citizen asked where the Site is ranked nationally and at the State level.

  EPA Response. The Site is ranked first on South Carolina's cleanup priority list. It is ranked number 83 on the National Priorities List.

- A citizen asked if use of the Site will be restricted after treatment of contaminated soil and ground water is completed.

EPA Response. When response activities are concluded, EPA anticipates the Site will not pose a threat to human health and the environment. EPA cannot say wether restrictions on land use will be necessary at that time.

PART II: COMPREHENSIVE RESPONSE TO SIGNIFICANT COMMENTS

This section provides a comprehensive response to all significant comments on the SCRDI Bluff Road Site received at the public meeting held April 10, 1990, and during the public comment period. Some of the information presented in this section elaborates with technical detail on answers covered in Part I of this responsiveness summary. Concerns and questions presented in this section can be grouped in four categories:

A. Implementation of Remedy

B. Health Concerns

C. Remedy Selection

D. Miscellaneous.

A summary of the comments and EPA's response to them is provided below.

A. Implementation of Remedy

o An attendee asked if ground-water treatment under EPA's proposed plan will take 16 years to complete.

EPA Response. Yes. Sixteen years is a rough estimate. One of the activities EPA undertakes during the remedial design process is gathering more data on the extent of contamination. Extensive modeling is conducted to determine the exact location at which ground-water extraction wells should be installed and exactly how the treatment system should be set up. From these activities, an estimated time frame for cleanup is established. Sixteen years is the amount of time EPA estimated for cleaning up ground-water contamination at the Bluff Road Site.

o The SCDHEC agreed with EPA's selection of reinjecting treated ground water as the discharge alternative, but expressed concern that reinjection into the vadose zone may present problems, such as flooding. SCDHEC asked EPA to conduct a pilot project to test the effect of reinjecting treated ground water into the vadose

zone and the aquifer. SCDHEC requested that the pilot project be completed prior to implementing the proposed ground-water reinjection alternative.

EPA Response. EPA agrees pilot testing will be necessary to determine specific design and operating procedures to allow for effective operation of a reinjection system.

o The Bluff Road Group commented that thermal desorption of contaminated soil poses numerous problems that will likely result in a one- to two-year delay in implementing the cleanup. For example, thermal desorption requires excavation, with the potential for risk to public health and the environment; requires extensive materials handling; may necessitate access agreements or easements for adjacent land; raises potential wetland issues; and is affected by the availability of treatment units.

EPA Response: EPA agrees that alternatives requiring excavation pose problems of their own. One of the advantages of the soil vacuum extraction alternative is the minimization of short term risks to workers and nearby populations. EPA has since determined that in-situ soil venting is appropriate. Therefore, many of these concerns would no longer be applicable.

o The SCDHEC commented that EPA's preferred soil treatment alternative, on-site thermal desorption, will not treat inorganic compounds. SCDHEC suggested that either a pre-treatment or post-treatment process be implemented, in addition to thermal desorption, to treat inorganic and semi-volatile organic compounds.

EPA Response. None of the alternatives considered for soil remediation directly address inorganic constituents. Models used to determine the maximum allowable concentrations of contaminants did not identify any inorganic constituents at concentrations posing a threat to the groundwater.

o The SCDHEC commented that due to the presence of inorganic and semi-volatile organic compounds at the Site, soil venting will not be an effective method for remediating soil contamination.

EPA Response. Models used to determine the maximum allowable concentrations of contaminants did not identify any inorganic constituents at concentrations posing a threat to the groundwater. A recent pilot test of the soil vacuum extraction technology indicates it is capable of removing semi-volatile organic compounds.

- The SCDHEC requested that EPA conduct additional investigations of the Site geology and the horizontal and vertical extent of the contaminated ground-water plume during the remedial design phase.

EPA Response. EPA has included provisions for additional investigative work to be performed as part of the Record of Decision.

B. Health Concerns

- Two attendees expressed concern about migration of ground-water contamination and asked how often EPA will sample ground water at the Site.

EPA Response. After the public meeting, EPA made provisions for quarterly sampling at the Site through January 1991. Currently, there is an array of monitoring wells installed at the Site. The well that is farthest downgradient from the source of contamination indicates there is no contamination at that point. EPA assesses ground-water contamination by locating the source of contamination. Once the source has been located, the direction of ground-water flow is determined and monitoring wells are then installed to test for contamination and to track how far the contamination has spread. This is the process EPA has followed at the Bluff Road Site. EPA has found that the contaminated ground-water plume has spread about 2,200 hundred feet. EPA will continue to sample the wells until a ground-water extraction system is installed.

- A citizen expressed concern about off-site migration of contaminated compounds to Myers Creek and asked if it is possible that some of the compounds found on the site, specifically barium, may be migrating faster than others and have reached water sources in the area.

EPA Response. Some barium was detected at two Site monitoring wells. Barium is a natural compound that is found in geological deposits, as are many other metals. It is possible that the metals detected in surface water bodies such as Myers Creek may be due to runoff. Volatile organics, which are the primary concern of ground-water contamination at the Site, are extremely mobile. EPA has delineated a plume of volatile organics with high mobility.

o A citizen asked for an explanation of what "maximum contaminant levels" (MCLs) mean.

EPA Response. MCLs are the maximum permissible levels of contaminants that may be consumed in drinking water. These levels are determined by EPA and are applicable to all public water supplies. For carcinogens, MCLs are based on a concentration of a carcinogen that would not increase the risk of one additional case of cancer per million people for a lifetime exposure to drinking water. Thus, given EPA's proposed cleanup level, in a million people there will be one increase in cancer cases. MCLs are based on the daily consumption of drinking water for a lifetime exposure (estimated at 70 years) relative to the potency of the particular carcinogen present. For each carcinogen, there is a different potency based on the carcinogen's potential for causing cancer.

C. Remedy Selection

o Three PRPs commented that EPA's selection of thermal desorption, rather than in-situ soil venting, as the preferred remedy for soil contamination is not cost effective and therefore, is inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The commentors also noted that the NCP requires EPA to select the least expensive remedy when all remedies examined are equally feasible, reliable, and provide the same level of protection. The commentors further state that both EPA's FS Report and Site fact sheet acknowledge that both remedies satisfy EPA's criteria for remedy selection, and that the only difference between the two remedies is cost -- thermal desorption is 17 times more expensive than in-situ soil venting.

EPA Response: EPA has reviewed the new data provided as a result of the pilot test for soil vacuum extraction at the Site and now agrees the above comment is valid and supports the selection of soil vacuum extraction at the Site.

- A group of PRPs commented that in-situ soil venting, when compared to thermal desorption, offers advantages other than cost. For example, in-situ soil venting will minimize air emissions and avoid community opposition usually voiced when on-site incineration is a selected remedy.

EPA Response: EPA agrees with this comment.

- The Bluff Road Group commented that EPA's preferred remedy for soil contamination, thermal desorption, fails to meet NCP requirements with respect to implementability. For example, excavation of soils will cause fugitive emissions, land use requirements may encroach on wetlands, and thermal treatment equipment is likely not to be available for at least two years.

EPA Response: Implementability is defined as scientific/technical feasibility and availability of the technology within a reasonable period of time. Equipment shortages have not been serious impediments to implementation of alternatives at other similar sites. Thermal desorption is implementable at the Bluff Road Site. All of the items mentioned above are dealt with on a routine basis at many other sites.

- The Bluff Road Group commented that EPA should choose in-situ soil venting, rather than thermal desorption, as its preferred remedy to treat soil contamination because: 1) in-situ soil venting is an innovative technology that has been successfully tested and recommended by EPA at sites with similar geotechnical and contaminant conditions; 2) it has greater implementability with less potential health hazards; and 3) it is the most cost-effective soil remediation technology among all the soil remediation alternatives identified for the Bluff Road site.

EPA Response: EPA disagrees with the first two points. Each Superfund site is unique, and requires site specific determinations. However, results of the pilot test performed at the Site lead the Agency to believe that soil vacuum

extraction may work at this Site. Therefore, EPA agrees it should be the preferred alternative at the Site.

o A group of PRPs advocating in-situ soil venting as the selected remedy for soil contamination suggested that EPA require in the Record of Decision that a pilot study of this treatment method be implemented. The pilot study would address EPA's concerns about unknown site conditions reducing the effectiveness of this cleanup method.

EPA Response: EPA requested the Bluff Road Group to undertake an on-site pilot study of soil venting/vacuum extraction as part of the RI/FS at the Site. The Bluff Road Group agreed to this request, and submitted to EPA on June 6, 1990, a Work Plan for the pilot study. The pilot test showed that the identified contaminants of concern could be extracted by this treatment. Therefore, the Record of Decision presents soil vacuum extraction (soil venting) as the preferred alternative.

E. Other Concerns

o The Bluff Road Group commented that vendors who responded to EPA's Request for Quotation for implementing the in-situ and thermal desorption treatment methods did not base their cost estimates on uniform specifications. For example, thermal desorption quotations did not include costs for design, mobilization, excavation, materials handling, sampling/analysis, and fill/grading. As a result, thermal desorption costs are incomplete and cannot be used as total project costs.

EPA Response: EPA obtained independent cost estimates due to questions about the actual quantities of soil to be remediated and a desire to independently research remediation costs estimated by a number of vendors as opposed to the singular cost estimate provided by the PRPs in the Feasibility Study. These independent estimates indicate costs for some alternatives were high, however, they also confirmed soil vacuum extraction to be among the least expensive alternatives considered.